

Amendments to the Claims

1. (Withdrawn) An apparatus for shelling an investment casting pattern comprising:
a tank for containing a coating material;
means for holding the pattern immersed in the coating material; and
means for vibrating the pattern during immersion of the pattern.
2. (Withdrawn) The apparatus of claim 1 further comprising:
a pump coupled to draw a vacuum around the pattern.
3. (Canceled)
4. (Canceled)
5. (Withdrawn) An apparatus for shelling an investment casting pattern comprising:
a tank for containing a coating material;
a holding element for holding the pattern immersed in the coating material; and
a vacuum source coupled to the tank to withdraw air from at least one headspace of the tank.
6. (Canceled)
7. (Withdrawn) The apparatus of claim 5 wherein:
a first said headspace is within a conduit containing the holding element and extending downward into the tank; and
a second said headspace is outside of the conduit.
8. (Canceled)
9. (Currently amended) A method for shelling an investment casting pattern comprising:

- introducing the pattern to a vessel containing a coating material via a robot arm carrying a fixture holding the pattern;
- coating the pattern with the coating material, including using the robot arm to rotate and vibrate the fixture; and
- drawing a vacuum in the vessel proximate the pattern.

10. (Currently amended) The method of claim 9 wherein:

the drawing includes a first drawing with an operative portion of the pattern above a surface level of the coating so as to rupture bubbles in coating material previously applied to the pattern.

11. (Canceled)

12. (Canceled)

13. (Currently amended) The method of claim 9 wherein:

the vacuum is drawn from a headspace of a conduit partially immersed in the coating material slurry.

14. (Original) The method of claim 9 wherein:

the drawing raises a level of the coating material in the vessel from a first height below an operative portion of the pattern to a second height above the operative portion of the pattern.

15. (Currently amended) The method of claim 14 further comprising:

releasing said vacuum so as to drop said level; and
redrawing said vacuum, without immersing the operative portion, so as to encourage the busting bursting of bubbles within a coating of said coating material on said operative portion.

16. (New) The method of claim 9 wherein:

the robot arm rotates the fixture about an off-vertical axis.

17. (New) The method of claim 16 further comprising:
rotating a first tank member of the vessel about a vertical axis.
18. (New) The method of claim 9 wherein the robot arm rotates and vibrates the fixture simultaneously.
19. (New) A method for shelling an investment casting pattern comprising:
introducing the pattern to a vessel containing a coating material;
coating the pattern with the coating material; and
drawing a vacuum in the vessel proximate the pattern, the drawing being from a headspace of a conduit partially immersed in the coating material.
20. (New) The method of claim 19 wherein:
the drawing raises a level of the coating material in the vessel from a first height below an operative portion of the pattern to a second height above the operative portion of the pattern.
21. (New) A method for shelling an investment casting pattern comprising:
introducing the pattern to a vessel containing a coating material;
coating the pattern with the coating material; and
drawing a vacuum in the vessel proximate the pattern, the drawing raising a level of the coating material in the vessel from a first height below an operative portion of the pattern to a second height above the operative portion of the pattern.
22. (New) The method of claim 21 further comprising:
releasing said vacuum so as to drop said level; and
redrawing said vacuum, without immersing the operative portion, so as to encourage the busting of bubbles within a coating of said coating material on said operative portion.
23. (New) A method for shelling an investment casting pattern comprising:

introducing the pattern to a vessel containing a coating material;
partially immersing the pattern in the coating material; and
drawing a vacuum in the vessel proximate the pattern, the drawing being from a
headspace of a conduit partially immersed in the coating material and raising a first meniscus of
the coating material within the conduit above a second meniscus of the coating material outside
the conduit thereby further immersing the pattern.

24. (New) The method of claim 23 wherein:
the introducing causes the partially immersing; and
the further immersing comprises completely immersing an operative portion of the
pattern.
25. (New) The method of claim 23 further comprising:
using a robot arm to rotate a fixture carrying the pattern and vibrate the fixture so as to
improve wetting of a surface of the pattern.
26. (New) The method of claim 23 further comprising:
after an immersion interval, venting the headspace to atmosphere; and
drawing vacuum from said headspace and a second headspace above the second meniscus
to rupture bubbles in the coating material on the pattern.
27. (New) The method of claim 26 further comprising:
subsequently venting the headspace and the second headspace to atmosphere.
28. (New) The method of claim 26 further comprising:
subsequently using a robot arm to withdraw a fixture carrying the pattern while
maintaining rotation and vibration of the fixture.
29. (New) The method of claim 28 further comprising:
subsequently using the robot arm to bring the fixture and pattern to additional stages

including a stage for application of solid particles to the coating material.